

Instructions for Manikin Tests on Footwear and Headwear at KSU

Every time you send a set of products for testing, email the **KSU Submission Form for Footwear or Headwear** file to merediths@ksu.edu. Send the file in Word format – not PDF. Only one form is needed for a set of garments; we will prepare one report and invoice. *If you require a separate report and invoice for each test, then prepare separate submission forms for each sample.*

Section 1. Company Information. Enter your company information and contact information on the form.

Section 2. Purchase Order, Invoice, and Payment. If you provide a purchase order number, we will put the PO number on the invoice. Companies may pay by check, wire transfer, or credit card. Instructions are given on the invoice. If you want the invoice sent to someone other than the company contact, indicate this on the form. Invoices are normally sent after the report has been issued.

Section 3. Test protocol and price. Please indicate the type of tests that you want on the submission form.

The insulation value of a footwear or headwear garment or system of garments can be measured on a body part manikin (foot or head) according to ASTM F 3426.

There is no standard method for measuring the evaporative resistance of garments on a body part manikin. We follow the same basic procedures in the whole body manikin standard, ASTM F2370, modified for a body part manikin (foot or head).

Local resistance values. If you are trying to investigate the effects of changing garment design variables and/or materials in product development, the *local* total insulation value and/or *local* total evaporative resistance value for each zone of the foot or head manikin can be provided.

Thermal imaging. A FLIR E5-XT infrared camera will be used. Thermal imaging is only available as an add-on service to manikin testing. Images are considered supplemental information. Due to issues with emissivity and reflectivity of different surfaces, associated temperature scales will not be provided. Color scales of different photos/samples may not match.

Section 4. Garment samples – sizing, labeling, and sending samples. Please select the clothing size that will fit the manikin properly. Mixing sizes will lead to variability in the results. The thermal foot form requires a US size 10.5 shoe and 11 boot for the left foot. Please request a CAD drawing of the head for the proper fit of helmets.

Label each garment with a simple letter code (A, B, C, etc.) using a permanent felt-tip marker or a hang tag. Please list each ensemble by a code designation, followed by all of the garments in the ensemble and dressing instructions. This information will be copied

and put in the report. If a garment is to be tested more than one way, please make this clear in your list of tests. Some boots may need to be cut to put them on the foot manikin.

Send the garments to:

Meredith Schlabach
Institute for Environmental Research
Kansas State University
0056 Seaton Hall
Manhattan, KS 66506
Phone: 785-532-2284
email: merediths@ksu.edu

If you are sending products from a country other than the United States, please make sure that you pay all customs duties and brokerage fees associated with the shipment.

Timing. We test garments in the order they are received at KSU. We can measure the insulation of one ensemble (all three reps) in a 24 hour period. The evaporative resistance tests take longer because we cannot run overnight. During holidays and campus vacation breaks turn times will be longer.

Test report. A test report will be prepared and emailed as a PDF file with the company's name and technical report number as the file name.

Section 5. Return of garments. Provide your company's preferred shipping company and account number for return shipping (e.g., Federal Express, UPS, DHL) on the form. If the return shipping account is invalid, then you will be invoiced to reimburse KSU for return shipping expenses. Let us know if you require overnight shipping. We can also donate the garments to charity.

Section 6. Export Controls Compliance. Indicate if you are contracting, working, or acting for or on behalf of a national government. Include information about the agency or the branch of a national government that you are associated with.
